

RETRODISPLACEMENTS OF THE UTERUS, WITH ESPECIAL REFERENCE TO THEIR CAUSATION AND A NEW METHOD OF TREATMENT.*

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Retrodisplacements of the uterus were probably first spoken of about the middle of the eighteenth century. While the ancients recognized prolapse, other displacements were included in the imaginary wanderings of the uterus to the various parts of the body. During the eighteenth century, when the care of labor cases began to pass from the midwife proper to the trained male obstetrician, the great danger associated with pregnancy in the retroverted uterus was clearly recognized. In 1770, William Hunter described retroversion of the uterus and four years later reported a case associated with pregnancy. During the first half of the nineteenth century, retrodisplacements were generally recognized and many ingenious mechanical devices were made to correct this deformity. Many of the pessaries employed during this period were a little less than instruments of torture, yet they were widely used until the beginning of the present operative period.

The normal location of the uterus is an ante-position whose plane is almost perpendicular to the longitudinal plane of the body. Its posterior walls are in constant apposition to the small bowel which normally extends into the cul-de-sac of Douglas. The mechanism by which the uterus is normally poised in this position must necessarily be a very complex one, owing to the pressure exerted upon it by the surrounding viscera, and at the same time to provide for the physiological processes incident to child-bearing.

Before attempting to correct any malposition one should have a clear understanding as to which part of this mechanism has been disturbed and before one can have such an understanding a concise knowledge of the various ligaments is absolutely essential. Laterally the fundus is invested with the broad ligaments which include the round ligaments, vessels, connective tissue and nerves within its folds. Their action is beautifully demonstrated in conservative pelvic operations requiring their incision; as, for example, the removal of both tubes. When the broad ligaments are cut free from the fundus, the uterus immediately assumes a reclining position on the rectum, even though the round ligaments have not been disturbed. The round ligaments have been a stumbling block to most gynecologists who consider them the true supporting structure of the uterus. Their muscular structure precludes the possibility of their action as a constant support, for nowhere in the animal organism is a muscle called upon to do continuous duty. Furthermore, when the abdomen is opened with the uterus in normal position the round ligaments are never found on tension but appear as lax cords and usually enter the internal inguinal ring at a point posterior to their attachment to the fundus of the uterus. Their chief function, therefore, seems to be demonstrated

by their hypertrophy during pregnancy, when they act as stays to poise the enlarged uterus in the abdominal cavity. On the other hand, their atrophy during long-standing retrodisplacements would seem to indicate a similar action in non-pregnant conditions.

Volumes have been written regarding retrodisplacements of the fundus while practically nothing has been said about displacements of the cervix, which constitutes an important step in the production of malpositions in a large percentage of cases. For various reasons, the utero-sacral ligaments have received insufficient attention. In the first place, their anatomical relations have been a bugbear to many surgeons. Although they are the chief structures holding the cervix high in the vaginal vault, most operators have depended entirely upon one method or another of suspending the fundus, drawing the cervix into its normal position. The utero-vesical ligament is a very elastic structure, capable of wide variations, and probably contributes little to the support of the uterus. The restoration of a torn perineum should always be attended to since it contributes chiefly to the support of the cervix and thus aids in maintaining the normal position of the uterus.

There are three main types of retrodisplacements; namely, retroposition, retroflexion and reclining uteri. Retroposition is the most common type, usually due to errors of omission and commission of the poorly trained obstetrician. The sequence of events in such cases is a downward displacement of the cervix and although the fundus may retain its normal relation to the cervix, the constant pressure upon its normal supports causes the entire uterus to become prolapsed on the rectum. In true retroversions, the cervix maintains its normal position but the fundus is bent backwards to form an acute angle with it. This type is usually found in nullipara and may be due to improper development, to sudden increase of intra-abdominal pressure, brought about by active exertion or by pelvic adhesions. The reclining uterus is a condition not usually spoken of in gynecological text-books but not infrequently occurs in young women and frequently causes the most obstinate type of dysmenorrhea. In such conditions, the cervix is displaced downwards, and although the fundus maintains an ante-position, there is an acute angle formed with the cervix and the entire uterus together with the ovaries assumes a reclining position in the cul-de-sac of Douglas. Under such conditions, the pelvic blood supply is disturbed, the ovaries become enlarged and tender and a definite obstruction to the drainage of the uterus results. During the past year, I operated upon several such cases, and by shortening the utero-sacral ligaments, supported the ovaries, secured free drainage of the uterus and immediately relieved the very severe symptoms of dysmenorrhoea.

The fertility of the surgical imagination is well demonstrated by the various operations that have already been published for the suspension of the uterus. As Clark has recently stated, the "57 variety" mark has certainly been out-numbered.

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This, however, is sufficient evidence that so far the ideal operation has not been included. It is not the object of this paper to criticize the various methods already proposed for, undoubtedly, good results have been attained by various procedures.

The following types of operation have been fairly successful: (1) The Kelly suspension, in which the uterus was sutured to the anterior parietal peritoneum. This operation was first done by Dr. Kelly in 1885 and simultaneously published by Olshausen in 1887. The disadvantage of this operation is the difficult labors which it occasionally produced so that it is no longer followed as a routine procedure. (2) The Alexander operation, in which the round ligaments are shortened at the inguinal ring on either side. This operation was first described in 1882 by Alexander⁴ of Liverpool. Although the technique has been variously modified it has never become popular here, chiefly because it necessitates two incisions and does not permit treatment of coincident intra-pelvic and intra-abdominal lesions. (3) The Gilliam operation, in which the round ligaments are drawn through the peritoneum on either side near the internal inguinal ring, carried either between or through the muscles of the abdominal wall and sutured to the fascia of the recti muscles. This operation will give good support to the uterus but it occasionally becomes adherent to the abdominal scar and in a large series of cases a good percentage complained of severe pain at the site of suture of the round ligaments. This pain would persist for a period of several days to many weeks and became so troublesome that the operation was abandoned about two years ago. (4) The Webster-Baldy operation, in which the broad ligament is punctured beneath the utero-ovarian ligaments and the round ligaments are drawn through and sutured to the posterior surface of the uterus. There are two main objections to this operation. In the first place, raw surfaces are left from the sutures where they come into close contact with the bowel and thus furnish the necessary conditions for adhesions. In the second place, the blood supply of the ovaries is disturbed, they become swollen, and sometimes cause severe post-operative pain. (5) The Coffey operation, which plicates the broad ligaments over the anterior surface of the fundus.

The ideal operation must be one which will poise the uterus in ante-position and depend upon the intra-abdominal pressure to maintain this position without mutilation of the pelvic structures and at the same time provide for the physiological changes incident to child-bearing.

The operation which I recently described in *Surgery, Gynecology and Obstetrics* is one which we have performed about two hundred times during the past two years with most satisfactory results. The abdomen is opened through a midline incision which is carried down to the symphysis pubes. Both sheaths of the recti muscles are opened and dissected free sufficiently to allow the placing of the suture of silk in the under surface of the fascia about two centimeters from the median line just above the symphysis. The suture

is then carried through the underlying muscles and peritoneum just lateral to the reflection of the bladder on the anterior abdominal wall. The peritoneum is next caught up at short intervals down to the internal inguinal ring and along the course of the round ligament to a point about two centimeters from the uterine cornu where the round ligament is pierced and the suture brought out of the abdominal cavity near the point of entrance. The same procedure is carried out on the other side and the sutures are tied. These sutures shorten both the anterior folds of the broad ligaments as well as the round ligaments and at the same time leave no raw surfaces within the abdominal cavity. In order to obtain a pull forward rather than upward the suture is anchored near the symphysis.

When there is a displacement of the cervix a running suture of silk is taken in either utero-sacral ligament, beginning at their junction to the cervix, and carried back to the pelvic brim. In placing these sutures one must avoid the ureters which usually lie outside the ligaments. When these ligatures are tied the cervix is drawn backwards and at the same time a shelf is made for the support of the ovaries. Where there is a displacement of the cervix, this is a most valuable procedure and in many cases is quite sufficient to secure an excellent suspension of the fundus.

CONCLUSIONS.

1. This operation restores the retroverted uterus to its normal position in the pelvis without mutilation of the pelvic structures.
2. There are no raw surfaces left within the abdominal cavity.
3. The anterior flap of the broad ligament is shortened and given a broader attachment to the abdominal wall.
4. There is no interference to bladder function.
5. It allows the normal hypertrophy of the uterine ligaments during pregnancy.
6. More attention should be given the displaced cervix since its restoration to normal position is fully as important as that of the fundus.
7. The shortening of the utero-sacral ligaments is a simple procedure and should be done in all cases in which there is a descensus of the cervix.

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Discussion.

Dr. W. G. Moore: As Dr. Neel stated, there are any number of operations for the support of the uterus. Personally, for the last three or four years, I have been doing the modified Gilliam suggested by Montgomery; that is, pulling the ligaments retroperitoneal to the internal ring, then around and attaching to the fascia near the mid line; this in my hands has given excellent results.

Personally I have not paid much attention to the sacro-uterine ligaments. In those cases which I have been able to follow, the above operation has given good results, but I think the support given by the perineum is more essential than that of the sacro-uterine ligaments.

Dr. A. B. Spalding: I would like to call attention to some work done by Blaisdell a year or so ago at Stanford. He did a very valuable piece of anatomical work on the structure and function of

the sacro-uterine ligaments, which fits in very well with what Dr. Neel has brought out tonight.

When patients suffer from retroversion, they often have marked interference with the bowel function and with the circulation in the veins of the broad ligament. Blaisdell demonstrated that in lower animals and in man, the sacro-uterine ligaments are fan-shaped structures with fibers attached not only to the uterus, but also to the walls of the vagina and to the rectum. To raise the walls of the vagina and raise the rectum to a place where the bowels can functionate properly, relieves the symptoms not only of retroversion but of prolapse and of constipation.

It has been a pleasure to me to listen to this paper. After every operation that I have performed for retroversion, I have hoped that fixation would not demonstrate itself in later pregnancy. The patient has been a source of worry for fear that the round ligaments would not be in the position in which they are needed when the woman has a labor pain. This operation of Dr. Neel's is decidedly an advance which men doing obstetrics and gynecology should notice with interest. Too many men operate who do not confine the women afterward.

Dr. J. Craig Neel, closing discussion: The principle of shortening the broad ligament has been emphasized by Dr. Coffey in a paper published about 1909 in *Surgery, Gynecology and Obstetrics*. In this paper Dr. Coffey goes into detail regarding the support of the abdominal viscera and strongly emphasizes the fact that muscle structure is not a normal support of any organ in the body, and concludes that the uterus is no exception; hence the round ligaments cannot be considered constant uterine supports.

The operation which I have described not only shortens the broad ligaments but at the same time they are given a broad attachment to the abdominal wall without leaving any raw surfaces inside the abdomen. I would like to emphasize once more the importance of shortening the utero-sacral ligaments where there is a displacement of the cervix or a prolapse of the ovaries.

DISCUSSION OF THE PATHOLOGICAL DIVISION OF ST. LUKE'S HOSPITAL CLINICAL CLUB.

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If a clinician had a mind sufficiently endowed by nature, and sufficiently cultured by study to be able to appreciate all that is known about anatomy, surgery, pathology, and all other divisions of medicine, and he also had at his disposal time to make examinations of his patient in each of these branches, he would have a most comprehensive, correlated clinical picture; but each division of medicine has developed so extensively that it is impossible to ascertain full knowledge of any one. Furthermore, no individual could systematize his time so that he could cover all divisions of medicine in all cases even though he had the ability to do so. Then the clinical picture must be blurred the further the clinician specializes his work. Since specialization is a necessity, depending on human mental limitation, it must be accepted. On the other hand, the limitation of study and practice along lines of personal interest and adaptability has its advantages, for within them it is more nearly possible to attain perfection. The difficulty is, however, that a clinician who interprets the ills of his patient

partly through written reports of various specialists who have not studied the case as a whole, is not always bringing the whole knowledge of each of them to bear on the case. One or more of these specialists might add to or subtract from their reports were it possible for each to see the case from all other angles. It is evident then that isolated written reports are not always easy to correlate into one comprehensive picture because the facts are not all present. In order that the unwritten information of the various clinicians should not be lost, St. Luke's Hospital Clinical Club organized its Diagnostic Section, which provides that, after the reports are written, the members of the section must meet and add facts to their reports from their general knowledge, until the clinical picture is clear to all as if the whole had been done by one.

This idea of having the pathologist a unit of the Diagnostic Section, employing his laboratory technic as the internist uses his stethoscope, or the aurist uses his speculum, is so new that it may be some time before its advantages for the patient, for the physician, for the hospital, and for the pathologist himself, will be fully appreciated. On the other hand, it is strange indeed that physicians should think that a pathologist can any more easily, or intelligently, discern a patient's ills through the medium of correspondence, than can the symptoms of a patient be interpreted by a surgeon using similar methods. The patient's interests are undoubtedly better served from the pathological department if the pathologist, after writing an unbiased report, has the opportunity to reconsider it, to repeat his work when he sees the necessity, to make clear tests which may or may not verify the first, to make suggestions as to methods of collecting material for investigation, in order that it may be more appropriate for particular purposes; and best of all, he has the opportunity to see the case through the eyes of his colleagues, which gives him a broader medical perspective. It would seem that it is only justice to the patient, that the pathologist be granted the same privileges of checking his work as is afforded the clinicians.

There are some very important advantages from the standpoint of the Diagnostic Section, for they demand that the pathologist keep them daily informed as to the advisability of discarding certain tests, as to the value of certain reactions, as to the importance of recently reported laboratory tests, and as to their significance. This offers his colleagues an opportunity to keep abreast with the times in pathological matters while permitting them to spend the time formerly occupied in acquiring this knowledge in the pursuit of their own studies.

The hospital laboratory is improved as soon as the pathologist is called upon to assume a definite responsibility of which the other internists are entirely relieved. The complaints as to lost, delayed, or inaccurate reports disappear. Harmony is developed and apologies are unnecessary. The pathologist being in a position to avoid unnecessary work and unnecessary repetition of work, it is